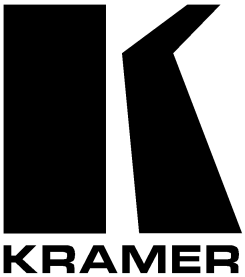
Kramer Electronics, Ltd.



USER MANUAL

Models:

SPK-CC688, ***Closed-back Ceiling Speakers***

SPK-CC448, ***Closed-back Ceiling Speakers***

SPK-CC444, ***Closed-back Ceiling Speakers***

SPK-CC348F, ***Closed-back Ceiling Speakers***

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1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 500-plus different models now appear in eight groups[1] that are clearly defined by function.

Congratulations on purchasing your Kramer *Closed-back Ceiling Speakers*, available in four models: **SPK-CC688**, **SPK-CC448**, **SPK-CC444** and/or **SPK-CC348F**, which are ideal for:

- Home theater sound systems
- Multimedia systems

The package includes the following items:

- *Closed-back Ceiling Speakers* **SPK-CC688**, and/or **SPK-CC448** and/or **SPK-CC444** and/or **SPK-CC348F**
- Mounting kit
- This user manual[2]

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
- Use Kramer high performance cables[3]

1 GROUP 1: Distribution Amplifiers; GROUP 2: Video and Audio Switchers, Matrix Switchers and Controllers; GROUP 3: Video, Audio, VGA/XGA Processors; GROUP 4: Interfaces and Sync Processors; GROUP 5: Twisted Pair Interfaces; GROUP 6: Accessories and Rack Adapters; GROUP 7: Scan Converters and Scalers; and GROUP 8: Cables and Connectors

2 Download up-to-date Kramer user manuals from the Internet at this URL: http://www.kramerelectronics.com

3 The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com

3 Overview

The Closed-back Ceiling Speakers include a pair of high performance closed back speakers that can be mounted on the ceiling, as well as a ceiling mounting kit for safely securing the speakers to the ceiling. Table 1 defines the closed-back ceiling speakers:

Table 1: Closed-back Ceiling Speakers – Definition

Name	Diameter [“]	Resistance [Ω]	Closed-back Depth [“]
SPK-CC688	6.5	8	8
SPK-CC448	4	8	4
SPK-CC444	4	4	4
SPK-CC348F	3	8	4

To achieve the best performance:

- Connect only good quality connection cables[1], thus avoiding interference, deterioration in signal quality due to poor matching, and elevated noise-levels (often associated with low quality cables)
- Avoid interference from neighboring electrical appliances and position your Kramer **Closed-back Ceiling Speakers** away from moisture, excessive sunlight and dust

1 Such as the Kramer BC-2S cable

4 Your Closed-back Ceiling Speakers

Figure 1 and Table 2 define the closed-back ceiling speakers:

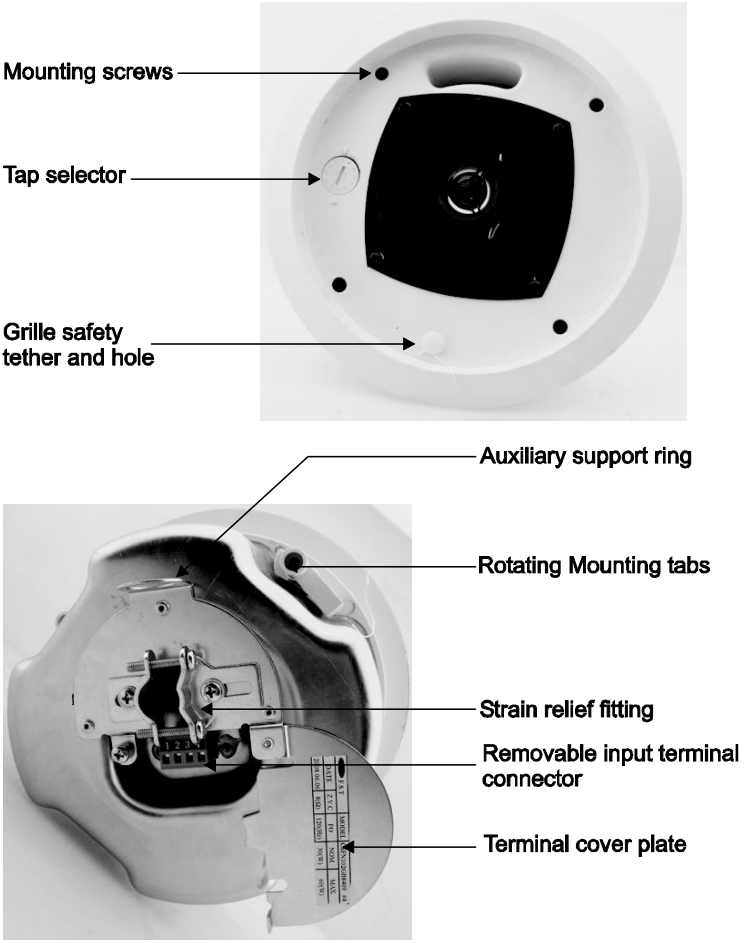

Figure 1: Closed-back Ceiling Speaker

Table 2: Closed-back Ceiling Speakers Hardware Items

Description		
A pair of ceiling speakers (one shown)	Two grilles (one shown)	Cutout template

Table 3 defines the ceiling mounting kit items

Table 3: Ceiling Mounting Kit Items

Four support ring screws	Two ceiling support rings (C-ring) – one shown	Two pairs of tile rails – one of a pair shown

Each closed-back ceiling speaker is supported by a C-ring and two tile rails[1]. When mounting onto the ceiling tiles[2], use both supports. When mounting onto a sheetrock ceiling, the C-ring alone is used to reinforce the ceiling material.

Figure 2 shows a schematic diagram of the closed-back ceiling speaker:

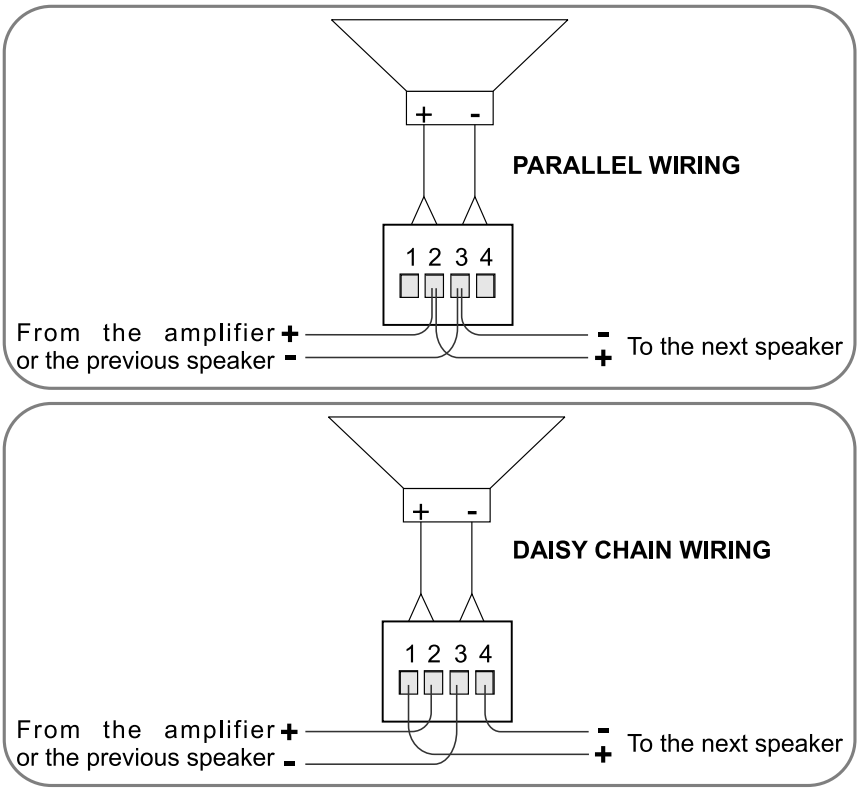

Figure 2: Closed-back Ceiling Speaker Schematic Diagram

1 The tile rails prevent the speakers from falling if the tile itself comes out or falls apart, as their ends catch onto the T-grid

2 Be sure that the tiles can support the speaker. Smaller sized tiles or fiberglass-type tiles cannot support the weight of the speakers. When this is the case, the speakers will need additional support

5 Installing the Closed-back Ceiling Speakers

This section explains how to install the closed-back ceiling speakers, that is:

- Choosing the best place to locate your speakers (see section 5.1)
- Cutting the ceiling tile (see section 5.2)
- Painting the speakers (see section 5.3)

5.1 Choosing the Best Location

Ideally, locate the speakers above the main listening area. Before doing so, be sure that:

- The desired location is free of obstructions, such as electrical piping, AC ducts or water lines, and so on
- There is enough space behind the mounting surface for the speakers
- Rear side of the speaker is not blocked by wall studs or other objects

5.2 Cutting the Ceiling Tile

To cut the ceiling tile, do the following:

1. Remove the circle in the supplied cardboard template[1].
2. Mark the opening in the correct location by tracing the hole in the template.
3. Cut out the hole according to the template or with a circular cutter set to the appropriate cutout size[2].
4. Route the wiring from the amplifier to the speakers' cutout holes, taking care not to place them next to electrical wires or at least at a distance of about two feet from an AC line[3].

If you are mounting the speakers onto a ceiling tile, remove the ceiling tiles where you plan to install the speakers. Use the template to trace and then cutout the speaker hole over an empty box.

The closed-back ceiling speakers are supported by the ceiling mounting kit (two C-rings and two pairs of tile rails[4]). When mounting onto the ceiling tiles[5], use both supports. When mounting onto a sheetrock ceiling, the C-ring alone is used to reinforce the ceiling material.

1 Keep this circular piece of cardboard for later use as a mask, as you may want to paint the speakers (see section 5.3)

2 Initially, you can cut a smaller area inside the marked hole just to be sure that the space above the speakers is clear

3 Do not nail or staple the speaker wires

4 The tile rails prevent the speakers from falling if the tile itself comes out or falls apart, as their ends catch onto the T-grid

5 Be sure that the tiles can support the speaker. Smaller sized tiles or fiberglass-type tiles cannot support the weight of the speakers. When this is the case, the speakers will need additional support

To install the closed-back ceiling speakers, do the following:

1. Place the C-ring over the hole cut in the ceiling tile (on the "ceiling" side). Place it around the hole so that the tabs are located in parallel to the tile edges (see Figure 3).

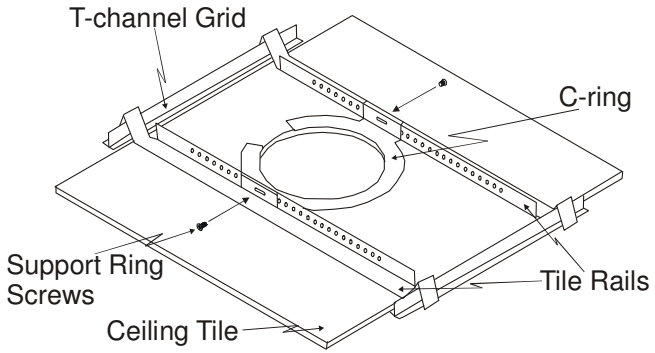

Figure 3: Installing the Closed-back Ceiling Speakers

2. Place the tile rails on the tile and snap them into the two tabs on the C-ring.
   Align the rails so that the ends extend over the T-channel grid.
3. Insert a screw through each tab on the C-ring to secure the rails.
4. Connect the speaker wires to the appropriate connector terminals[1] and screw the hold-down screws on the connector until tight[2].
   You can connect the speakers in the two following possible layouts:
   - **Wiring in parallel**: connect the wire pair of the subsequent speaker to PIN 2 and PIN 3. When one input connector is removed, subsequent speakers will remain connected (see Figure 2)
   - **Daisy-chaining**: connect the wire pair of the subsequent speaker to PIN 1 and PIN 4. When one input connector is removed, subsequent speakers will be disconnected (see Figure 2)
5. Plug the connector into the socket in the terminal cup of the speaker and tighten the screws (see Figure 4).
6. Loosen the horizontal screws and then the strain relief screws.
7. Run the wires through the wires opening in the fitting and plug the input connector into the terminal block connector of the speaker.

1 PIN 1 and PIN 2 are connected internally and are positive (+). PIN 3 and PIN 4 are connected internally and are negative (-)

2 Use a small screwdriver

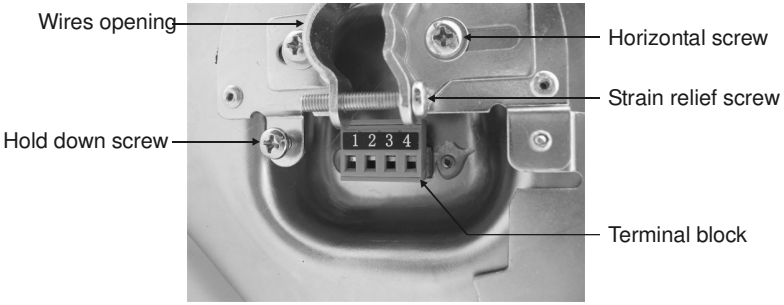

Figure 4: Plugging and Securing the Cables

8. Tighten the strain relief fitting, if plenum cable[1] is used:
   - Slide the wiring through the strain relief on the terminal cover plate
   - Hold the strain relief fitting tight around the cable
   - Tighten the strain relief screws first and then the horizontal screw[2]
9. Push the speaker into the ceiling hole until the front baffle rim is leveled with the ceiling.
10. Tighten the mounting tabs by turning the screw clockwise[3] (see Figure 5). When tightening the mounting tabs, the tabs automatically turn outward, thus clamping the speaker to the wall from its rear side.
    Note: Do not over-tighten the screws. It may cause damage to both the speakers and the surface.

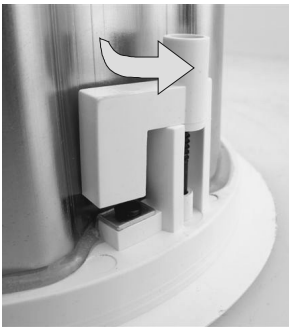

Figure 5: Tighten the Mounting Tabs

1 If other types of cables are used, an alternate conduit fitting can be used by removing the existing fitting and replacing with an alternate one

2 In cases of an insulated speaker wire and plenum cable, it is often possible to provide acceptable strain relief force simply by tightening the strain relief screws onto the terminal cover plate

3 The first quarter turn, rotates the tab outwards, and the following turns the tabs tighten to the rear side of the ceiling surface

11. If required, you can further secure the speaker by connecting the speaker support ring to an independent secure anchor point.
12. Adjust each speaker to the appropriate tap setting[1] before installing the grille[2] (see Figure 6).

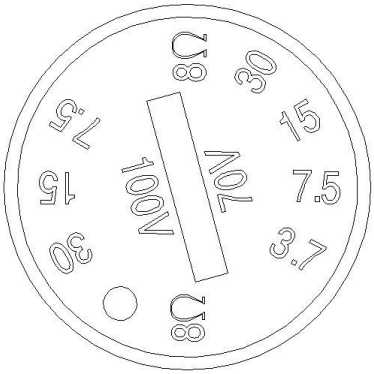

Figure 6: Adjust Tap Selector (for the SPK-CC688)

13. Install the grilles to the speakers:
    - Push the grille fastener into the hole in front of the baffle
    - Press the grille into place until the front of the grille is flush with the rim of the baffle
    - Check that the grille is securely seated[3]

5.3 Painting the Speaker

You can paint the speakers before or after the speaker is installed.

When painting before installation:

- Clean the rim and grille with mineral spirits or other light solvent that is unlikely to damage the surface
- Spray with color by holding the spray can at an angle of 45°
  Note: When spraying the grille, take care not to clog the holes in the grille as this will greatly reduce the sound quality of the speakers

1 The tap selector has different values depending on the model. For example, Figure 6 shows the Tap Selector for the SPK-CC688

2 In addition to the 8Ω setting, the power taps are 30W, 15W, 7.5W and 3.7W at both 70.7V and 100V, with a 1.8W tap for 70.7V only

3 To remove the grille, insert two bent paper clips into the holes in the grille and carefully pull it down. Repeat this around the perimeter of the grille until it is completely removed

When painting after installation:

- Use the circle that you cut out of the template as a paint mask
- After you finish painting, remove the paint mask

6 Technical Specifications[1]

Table 4, Table 5, and Table 6 include the technical specifications of the closed-back ceiling speakers:

Table 4: Technical Specifications of the SPK-CC688

DESCRIPTION:	2-way co-axial speaker
HIGH FREQUENCY DRIVER:	1" dome silk tweeter
LOW FREQUENCY DRIVER:	6.5" Polypropylene cone woofer
IMPEDANCE:	8Ω
CROSSOVER FREQUENCY:	2.9kHz
SENSITIVITY:	89dB
FREQUENCY RESPONSE:	30Hz to 20KHz
POWER RATING:	30W nominal, 90W Max.
RECOMMENDED AMPLIFIER POWER:	30W
WEIGHT PER SINGLE SPEAKER:	3.4kg (7.05lbs) approx.
SHIPPING WEIGHT (FOR PAIR):	9.7kg (21.38lbs) approx.
DIMENSIONS (OD):	25cm (9.84")
CUT OUT SIZE (MOUNT DIMENSION):	22.1cm (8.7")
MOUNT DEPTH:	24.4cm (9.61")
ACCESSORIES:	Ceiling mounting kit

Table 5: Technical Specifications of the SPK-CC448 and the SPK-CC444

	SPK-CC448	**SPK-CC444**
DESCRIPTION:	2-way co-axial speaker	
HIGH FREQUENCY DRIVER:	0.5" PEI tweeter	
LOW FREQUENCY DRIVER:	4" Polypropylene cone woofer	
IMPEDANCE:	8Ω	4Ω
CROSSOVER FREQUENCY:	2.9kHz	
SENSITIVITY:	86dB	
FREQUENCY RESPONSE:	20Hz to 20KHz	
POWER RATING:	30W nominal, 90W Max.	
RECOMMENDED AMPLIFIER POWER:	30W	
WEIGHT PER SINGLE SPEAKER:	1.9kg (4.18lbs) approx.	
SHIPPING WEIGHT (FOR PAIR):	6.8kg (14.97lbs) approx.	
DIMENSIONS (OD):	21cm (8.27")	
CUT OUT SIZE (MOUNT DIMENSION):	18.1cm (7.13")	
MOUNT DEPTH:	14.3cm (5.63")	
ACCESSORIES:	Ceiling mounting kit	

1 Specifications are subject to change without notice

Table 6: Technical Specifications of the SPK-CC348F

DESCRIPTION:	Full Range - only one woofer
LOW FREQUENCY DRIVER:	3” Paper cone woofer
IMPEDANCE:	8Ω
SENSITIVITY:	85dB
FREQUENCY RESPONSE:	20Hz to 20KHz
POWER RATING:	15W nominal,30W Max
RECOMMENDED AMPLIFIER POWER:	15W
WEIGHT PER SINGLE SPEAKER:	1.5kg (3.52lbs) approx.
SHIPPING WEIGHT (FOR PAIR):	6kg (13.21lbs) approx.
DIMENSIONS(OD):	21cm (8.27")
CUT OUT SIZE(MOUNT DIMENSION):	18.1cm (7.13")
MOUNT DEPTH:	14.3cm (5.63")
ACCESSORIES:	Ceiling mounting kit

LIMITED WARRANTY

Kramer Electronics (hereafter *Kramer*) warrants this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for one year from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by Kramer, or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the Web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed.
3. Damage, deterioration or malfunction resulting from:
   i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
   ii) Product modification, or failure to follow instructions supplied with the product
   iii) Repair or attempted repair by anyone not authorized by Kramer
   iv) Any shipment of the product (claims must be presented to the carrier)
   v) Removal or installation of the product
   vi) Any other cause, which does not relate to a product defect
   vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.

NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.

This equipment has been tested to determine compliance with the requirements of:

EN-50081:	"Electromagnetic compatibility (EMC); generic emission standard. Part 1: Residential, commercial and light industry"
EN-50082:	"Electromagnetic compatibility (EMC) generic immunity standard. Part 1: Residential, commercial and light industry environment".
CFR-47:	FCC Rules and Regulations: Part 15: "Radio frequency devices Subpart B Unintentional radiators"

CAUTION!

Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.

Use the supplied DC power supply to feed power to the machine.

Please use recommended interconnection cables to connect the machine to other components.

For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found.
We welcome your questions, comments and feedback.

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